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MORBIDITY AND MORTALITY WEEKLY REPORT

Epidemiologic Notes and Reports

Tetanus — United States, 1985-1986

During the period 1985-1986, the *MMWR* Morbidity Surveillance System received reports of 147 cases of tetanus in the United States (83 in 1985 and 64, provisionally, in 1986). Thirty-four states reported at least one case of tetanus, and 22 states reported cases in both years. The majority of the 16 states reporting no cases in these years are in the Rocky Mountain region. The provisional average annual incidence rate for 1985-1986 was 0.03/100,000 total population, compared with 0.39/100,000 in 1947, when national reporting began. Incidence increased by age group, with an eightfold increase between persons <50 years of age and persons ≥50 (Table 1). Based on data for patients with known race, the estimated average annual incidence rate for whites was 0.03/100,000 (103 cases); for blacks, 0.06/100,000 (31 cases); and for all other races, 0.04/100,000 (6 cases).

Case report forms on 140 patients (95%) provided data on demographics, immunization history, circumstances of injury or other medical condition, and tetanus prophylaxis. Seventy-one percent (100) of the 140 cases occurred among persons

TABLE 1. Number and annual incidence rates of reported tetanus cases, by age group — United States, 1985-1986

Age (years)	No.	(%)	Annual Incidence Rate*
0-4	4	(2.9)	0.012
5-19	3	(2.1)	0.003
20-29	15	(10.7)	0.019
30-39	9	(6.4)	0.012
40-49	9	(6.4)	0.018
50-59	16	(11.4)	0.038
60-69	26	(18.6)	0.067
70-79	32	(22.9)	0.127
≥80	26	(18.6)	0.221
Total	**140**	**(100.0)**	**0.031**

*Per 100,000; determined by extrapolating the age distribution of the 140 patients for whom case report forms were received to the entire 147 patients with cases reported to the *MMWR*. Population estimates as of July 1, 1986, were used as denominators.

Tetanus — Continued

≥50 years of age, while 5% (7) occurred among persons <20 years of age (Table 1). The youngest patient was 10 months of age. There were no cases of tetanus among neonates. Fifty-five percent (77) of the patients were male. The overall case-fatality ratio among the 137 patients for whom outcome is known was 31%. It was 42% for patients ≥50 years of age, and 5% for those <50 years.

Nine patients (6%) were reported to have received at least a primary series of tetanus toxoid* prior to onset (Table 2). However, one of these received the third dose as part of wound prophylaxis, and three had not received a dose within the preceding 10 years. Four of the seven patients <20 years of age had not received any doses of tetanus toxoid; the vaccine status of three was unknown. Two persons reported to have received at least a primary series of tetanus toxoid prior to onset died. One was a 61-year-old male whose most recent dose of toxoid was administered 20 years earlier. The other, the youngest fatality reported during the period 1985-1986, was a 26-year-old female who had no identifiable injury or associated condition and whose most recent dose of toxoid had been administered 8 years earlier.

Ninety-nine persons (71%) contracted tetanus after an identified acute injury. The most frequently reported acute injuries were puncture wounds (38%) and lacerations (37%). The circumstances of injury were known for 85 of the patients. Forty-eight percent of these wounds were incurred indoors; one was surgery-related; and the rest occurred during gardening or other outdoor activities. The median incubation period for the 75 patients with known date of injury was 7 days. Nine percent (7) had an incubation period of >14 days, and 12% (9) had an incubation period of ≤3 days.

In view of reported immunization status and using the current recommendations of the Immunization Practices Advisory Committee (ACIP) for the use of tetanus and diphtheria toxoids (Td) and tetanus immune globulin (TIG) in wound management (Table 3) (*1*), all 99 patients who developed tetanus following an acute wound should have received at least Td prophylaxis†. Tetanus toxoid was given as prophylaxis for wound management to 20 patients (20%) with acute wounds; 13 (65%) of these

*Primary immunization against tetanus consists of three doses of tetanus toxoid, assuming at least 1 month between doses 1 and 2 and at least 6 months between doses 2 and 3 (*1*).
†Includes three patients who had acute, non-clean, non-minor wounds and had received ≥3 doses of tetanus toxoid but had not received a dose of toxoid within the previous 5 years.

TABLE 2. Immunization status of patients with reported cases of tetanus, by history of doses received — United States, 1985-1986

Reported Immunization Status (Number of Doses)	No.	(%)
0	29	(20.7)
1	16	(11.4)
2	4	(2.9)
3	4*	(2.9)
≥4	5	(3.6)
Unknown number of doses	20	(14.3)
Unknown status	62	(44.3)
Total	**140**	**(~100.0)**

*Includes one patient who received the third dose as part of wound management.

Tetanus — Continued

received toxoid within 3 days of injury. How many of the 99 patients with acute wounds actually were seen by a medical provider prior to disease onset is not known.

Twenty-two patients had acute wounds severe enough to have required prophylactic wound debridement. Based on the ACIP recommendations for wound management, all of these patients were candidates for both Td and TIG (Table 3). However, none received TIG, and one (5%) received Td in the course of wound management.

Twenty-nine cases (21%) were associated with chronic wounds or underlying medical conditions such as skin ulcers, abscesses, or gangrene. A history of parenteral drug abuse was the only associated medical condition in three patients. No known acute injury, chronic wound, nor other pre-existing medical condition was reported for 12 (9%) patients.

Thirty-seven (31%) of the 121 patients who received TIG after onset of disease died. One received both TIG and equine tetanus antitoxin; the remainder received TIG alone. Total TIG dosages ranged from 75 to 22,000 international units (IU); the median was 3,000 IU. The 10-month-old patient received 75 IU and recovered.

Reported by: State and Territorial Epidemiologists. Div of Immunization, Center for Prevention Svcs, CDC.

Editorial Note: The incidence of tetanus has not changed substantially during the past decade, following the steady decline in the reported average annual crude incidence rate between 1947 and 1976 (Figure 1). The decline was attributed to both increasingly widespread immunization and improved wound management, including the use of tetanus prophylactic measures in emergency rooms.

The nationwide tetanus surveillance system is subject to limitations inherent in any reporting system. However, the clinical signs of tetanus are relatively dramatic and readily diagnosed; hence, tetanus is more likely than other diseases to be reported. Although case report forms were completed on 95% of the tetanus cases reported to the *MMWR* Morbidity Surveillance System during the period 1985-1986, the quality of the submitted information varied. Important data were occasionally omitted from the forms. More importantly, reported immunization status was usually based on verbal history and may not have been accurate.

The epidemiology of reported tetanus disease in the United States during the period 1985-1986 is essentially unchanged from that described previously for the period 1982-1984 (*2*). Tetanus remains a severe disease with a high case-fatality ratio

TABLE 3. Summary guide to tetanus prophylaxis in routine wound management, 1985 (*1*)

History of Adsorbed Tetanus Toxoid	Clean, Minor Wounds		All Other Wounds*	
	Td†	TIG	Td†	TIG
Unknown or <3 doses	Yes	No	Yes	Yes
≥3 doses§	No¶	No	No**	No

*Such as, but not limited to, wounds contaminated with dirt, feces, soil, saliva, etc.; puncture wounds; avulsions; and wounds resulting from missiles, crushing, burns, and frostbite.

†For children <7 years of age; DTP (DT, if pertussis vaccine is contraindicated) is preferred to tetanus toxoid alone. For persons ≥7 years of age, Td is preferred to tetanus toxoid alone.

§If only 3 doses of *fluid* toxoid have been received, then a fourth dose of toxoid, preferably an adsorbed toxoid, should be given.

¶Yes, if more than 10 years since last dose.

**Yes, if more than 5 years since last dose.

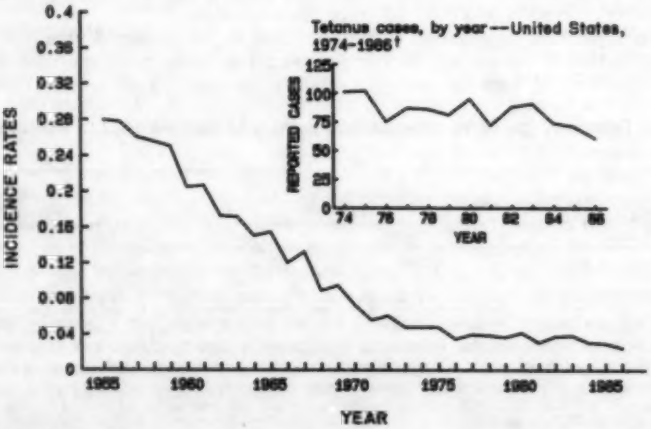
Tetanus — Continued

occurring primarily among unimmunized and inadequately immunized adults. Data indicate that 94% of patients with reported cases of tetanus during 1985-1986 had not received at least a primary series of tetanus toxoid. The 1985-1986 case-fatality ratio of 31% is similar to the ratio of 26% reported during 1982-1984, but less than half the ratio of 66% reported during the period 1950-1959.

Tetanus is a completely preventable disease. Vaccination with a primary series of three doses of tetanus toxoid and booster doses every 10 years is highly effective in the prevention of tetanus (*3*). Acute wound-associated tetanus can be prevented by appropriate wound management, including active and/or passive immunization. As reported here, most tetanus patients with acute injuries have not received appropriate prophylaxis. One percent to 6% of persons with tetanus-prone injuries reportedly receive less than recommended prophylaxis (*4,5*). Tetanus cases that are not associated with acute wounds or that occur in persons who do not seek medical care for their wounds can be prevented only by routine primary immunization and maintenance of an up-to-date immunization status.

In the United States, tetanus is primarily a disease of older adults. Accelerated tetanus immunization efforts should be directed in particular to persons ≥50 years of age since this age group now accounts for over 70% of reported cases. All providers of health care to adolescents and adults should take every opportunity to review the immunization status of patients and provide, when indicated, tetanus and diphtheria toxoids and other vaccines such as hepatitis B, influenza, pneumococcal polysaccharide, measles, mumps, and rubella (*6,7*). One method of improving maintenance of protection against tetanus (as well as diphtheria) following the primary series is to schedule booster doses of Td routinely at mid-decade ages, i.e., 15 years of age, 25 years, 35 years, etc.

FIGURE 1. Tetanus incidence rates,* by year — United States, 1955-1986†



*Per 100,000 population.
†Data are provisional for 1986.

Tetanus — Continued

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International Notes

Thallium Poisoning: An Epidemic of False Positives — Georgetown, Guyana

In late 1986, a striking increase in the number of reported cases of presumed thallium intoxication occurred in Georgetown, Guyana. Thallium sulfate had been used in Guyana as a rodenticide until January 1987, and review of hospital records in Georgetown showed that sporadic cases of presumed thallium intoxication had been diagnosed in Guyana since 1983. Most such reported cases had been defined on the basis of a positive blood or urine test for thallium performed at the Government Laboratory in Georgetown.

Because of the increase in the number of reported positive blood thallium tests, a Thallium Treatment Centre was opened at the Government Hospital in Georgetown on February 27, 1987. Approximately 240 persons per day came to the Centre. Those with symptoms thought to be compatible with thallium intoxication had blood drawn for thallium analysis at the Government Laboratory, and those with positive blood tests for thallium were advised to take two 500-mg tablets of Prussian Blue three times a day for 2 weeks. About 1,500 blood specimens and 900 urine specimens were received by the Government Laboratory between February 27 and March 12. In the month of February, the Government Laboratory reported that 263 of the 343 blood specimens tested (77%) were positive for thallium.

Epidemiologic investigation of the striking increase in the number of reported cases of presumed thallium intoxication began on March 1. Clinical case definitions of both acute and chronic thallium intoxication were developed and used to identify persons from whom specimens of blood and urine would be obtained for confirmatory thallium analyses at CDC. Clinical acute thallium intoxication was defined as acute gastrointestinal symptoms (severe abdominal pain or cramps and/or nausea [with or without vomiting]) lasting for 1-4 days, followed within 1 week by development of one or more of the following neurological problems: signs of peripheral neuropathy (paresthesias, hyperesthesias, and/or reflex changes), ataxia, or severe leg and/or foot pains. Clinical chronic thallium intoxication was defined as neurologic signs or symptoms compatible with thallium intoxication and either alopecia or two or more compatible constitutional signs or symptoms. Both case definitions excluded persons with obvious alternative explanations for their signs and symptoms.

Thallium Poisoning — Continued

All three hospitals in Georgetown and the West Coast Demerara Hospital were visited, and physicians were asked to identify patients who met either of the case definitions. A review of the available information about the distribution of illnesses in the community, including hospital charts and the case records of persons attending the Thallium Treatment Centre, and interviews with physicians and nurses revealed that the majority of persons seeking medical attention had mild, nonspecific complaints. No persons with clinical acute thallium intoxication were identified. There were seven persons with symptoms that met the case definition for chronic thallium intoxication. To determine whether these cases were, in fact, due to thallium intoxication, samples of blood and urine from the seven patients were analyzed for thallium content at the Division of Environmental Health Laboratory Sciences, Center for Environmental Health, CDC. The CDC laboratory also analyzed urine samples from 68 other persons who had symptoms that did not meet either of the case definitions,

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TABLE I. Summary — cases specified notifiable diseases, United States

Disease	29th Week Ending			Cumulative, 29th Week Ending		
	July 25, 1987	July 19, 1986	Median 1982-1986	July 25, 1987	July 19, 1986	Median 1982-1986
Acquired Immunodeficiency Syndrome (AIDS)	449	192	N	10,186	6,784	N
Aseptic meningitis	347	303	259	3,708	3,227	2,953
Encephalitis: Primary (arthropod-borne & unspec)	30	32	32	513	476	540
Post-infectious	2	2	2	67	63	63
Gonorrhea: Civilian	13,894	18,630	18,653	433,372	473,294	475,429
Military	320	440	418	9,019	9,054	11,596
Hepatitis: Type A	447	415	415	13,891	12,097	11,831
Type B	563	590	535	14,315	14,211	13,800
Non A, Non B	61	86	N	1,736	1,997	N
Unspecified	64	79	118	1,753	2,592	3,143
Legionellosis	18	12	N	453	326	N
Leprosy	7	7	6	107	161	145
Malaria	28	34	16	422	518	497
Measles: Total*	53	146	61	2,901	4,666	2,062
Indigenous	51	136	N	2,589	4,420	N
Imported	2	10	N	312	240	N
Meningococcal infections: Total	37	36	40	1,842	1,616	1,902
Civilian	37	36	39	1,841	1,614	1,788
Military	-	-	-	1	2	6
Mumps	84	56	50	9,658	2,750	2,250
Pertussis	59	57	57	998	1,517	1,124
Rubella (German measles)	5	12	12	243	347	451
Syphilis (Primary & Secondary): Civilian	635	456	580	18,808	14,128	15,313
Military	2	5	6	89	100	188
Toxic Shock syndrome	4	9	N	184	197	N
Tuberculosis	472	446	503	11,437	11,654	11,654
Tularemia	5	1	10	91	57	120
Typhoid Fever	13	5	4	162	153	171
Typhus fever, tick-borne (RMSF)	30	49	49	315	342	425
Rabies, animal	76	104	104	2,722	3,124	3,124

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1987		Cum. 1987
Anthrax	-	Leptospirosis (Md. 2)	12
Botulism: Foodborne	4	Plague	3
Infant (Calif. 1)	33	Poliomyelitis, Paralytic	-
Other	-	Psittacosis (Upstate N.Y. 1)	53
Brucellosis (Fla. 1, Tex. 3, N.M. 1)	61	Rabies, human	-
Cholera	-	Tetanus (Kans. 1)	19
Congenital rubella syndrome	4	Trichinosis (Md. 1)	27
Congenital syphilis, ages < 1 year	-	Typhus fever, flea-borne (endemic, murine) (Tex. 1)	17
Diphtheria	1		

*One of the 53 reported cases for this week was imported from a foreign country or can be directly traceable to a known internationally imported case within two generations.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending July 25, 1987 and July 19, 1986 (29th Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis(Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1987	1987	Cum. 1987	Cum. 1987	Cum. 1987	Cum. 1986	1987	1987	1987	1987	1987	Cum. 1987
UNITED STATES	10,186	347	513	67	433,372	473,294	447	663	61	64	18	107
NEW ENGLAND	420	23	25	2	13,516	10,603	15	30	1	4	-	10
Maine	14	1	1	-	388	500	-	2	-	-	-	-
N.H.	12	-	1	-	226	274	-	-	-	-	-	2
Vt.	4	5	4	-	116	148	-	2	-	-	-	-
Mass.	250	2	12	1	4,904	4,586	8	19	-	4	-	7
R.I.	35	11	3	1	1,124	924	1	1	1	-	-	-
Conn.	105	4	4	-	6,758	4,162	6	6	-	-	-	1
MID. ATLANTIC	2,853	53	71	5	71,393	78,947	30	108	5	9	2	5
Upstate N.Y.	397	10	30	3	9,304	9,373	13	13	1	1	2	-
N.Y. City	1,660	7	5	-	37,909	48,425	5	61	-	4	-	5
N.J.	540	29	7	-	9,062	10,062	5	13	2	3	-	-
Pa.	256	7	29	2	15,118	13,087	7	21	2	1	-	-
E.N. CENTRAL	695	49	148	12	62,902	65,504	30	49	1	1	8	4
Ohio	112	19	58	5	14,123	15,683	4	9	-	-	3	1
Ind.	57	1	11	-	4,975	6,723	12	15	-	-	4	-
Ill.	348	4	23	7	19,536	17,197	8	11	1	-	-	1
Mich.	125	25	44	-	18,955	18,125	6	14	-	1	1	1
Wis.	53	-	12	-	5,313	6,776	-	-	-	-	-	1
W.N. CENTRAL	224	11	19	-	17,570	20,414	28	19	3	-	-	-
Minn.	80	-	12	-	2,751	2,858	4	1	-	-	-	-
Iowa	15	4	2	-	1,696	2,048	2	3	1	-	-	-
Mo.	104	2	-	-	9,123	10,325	3	9	1	-	-	-
N. Dak.	1	-	-	-	147	186	-	-	-	-	-	-
S. Dak.	2	2	-	-	320	419	-	-	1	-	-	-
Nebr.	14	1	3	-	1,159	1,504	14	4	-	-	-	-
Kans.	28	2	2	-	2,374	3,076	6	2	-	-	-	-
S. ATLANTIC	1,670	70	62	19	113,248	121,149	28	109	11	5	3	5
Del.	10	1	3	1	1,758	1,923	-	2	-	-	-	-
Md.	192	8	10	4	12,815	14,160	5	25	-	-	-	2
D.C.	229	-	-	-	7,690	9,096	-	2	-	-	-	-
Va.	116	20	22	2	8,351	9,802	5	19	3	-	-	-
W. Va.	14	-	8	-	842	1,260	1	-	-	1	-	-
N.C.	86	-	9	-	16,843	18,679	3	14	4	1	-	-
S.C.	41	5	-	-	9,459	10,734	4	4	-	-	-	1
Ga.	252	12	-	-	18,958	21,077	-	26	2	-	1	-
Fla.	739	24	10	12	36,532	34,419	10	17	2	3	2	2
E.S. CENTRAL	122	27	28	5	32,705	38,285	6	32	4	-	-	-
Ky.	21	3	14	1	3,227	4,290	3	6	1	-	-	-
Tenn.	15	15	6	-	11,387	14,816	1	10	2	-	-	-
Ala.	72	4	8	-	10,678	10,965	1	8	-	-	-	-
Miss.	14	5	-	4	7,513	8,204	1	8	1	-	-	-
W.S. CENTRAL	929	41	53	4	49,224	57,402	39	55	3	14	2	4
Ark.	22	-	-	2	5,676	5,298	5	1	-	-	-	-
La.	127	-	6	-	8,063	10,266	-	-	-	-	-	-
Okla.	51	8	12	1	5,426	6,406	1	4	-	2	1	-
Tex.	729	33	35	1	29,459	35,432	33	50	3	12	1	4
MOUNTAIN	288	6	13	3	11,442	13,922	59	40	7	5	1	1
Mont.	2	1	-	-	305	402	2	3	-	-	-	-
Idaho	4	-	-	-	404	474	6	5	1	-	-	-
Wyo.	3	-	-	-	261	325	-	-	-	-	-	-
Colo.	115	-	1	-	2,484	3,617	10	8	-	4	-	-
N. Mex.	15	2	1	-	1,251	1,408	7	1	-	-	1	-
Ariz.	77	3	9	1	3,976	4,523	32	15	5	1	-	-
Utah	18	-	-	2	347	608	1	4	-	-	-	-
Nev.	34	-	2	-	2,434	2,565	2	4	1	-	-	1
PACIFIC	3,005	67	94	17	61,372	67,068	212	121	26	26	2	78
Wash.	140	-	9	3	4,403	5,174	67	29	5	2	1	3
Oreg.	61	-	-	-	2,324	2,650	27	7	3	-	-	-
Calif.	2,748	64	81	14	53,203	56,918	125	71	18	24	1	60
Alaska	8	1	2	-	936	1,586	1	4	-	-	-	-
Hawaii	50	2	2	-	506	760	2	10	-	-	-	15
Guam	-	-	-	-	123	93	-	-	-	-	-	-
P.R.	73	-	1	1	1,201	1,299	-	30	-	3	-	5
V.I.	-	-	-	-	143	135	-	-	-	-	-	-
Pac. Trust Terr.	-	-	-	-	265	208	-	-	-	8	-	44
Amer. Samoa	-	-	-	-	47	27	1	-	-	-	-	-

N: Not notifiable U: Unavailable

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending July 25, 1987 and July 19, 1986 (29th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1987	1987	Cum. 1987	1987	Cum. 1987	Cum. 1986	Cum. 1987	1987	Cum. 1987	1987	Cum. 1987	Cum. 1986	1987	Cum. 1987	Cum. 1986
UNITED STATES	422	51	2,589	2	312	4,866	1,842	84	9,858	59	998	1,517	5	243	347
NEW ENGLAND	29	1	100	-	150	78	156	3	29	8	35	97	-	1	9
Maine	-	-	3	-	-	10	9	-	-	-	5	2	-	1	-
N.H.	1	-	51	-	102	36	16	-	8	-	4	52	-	-	1
Vt.	-	1	10	-	14	-	10	-	2	1	4	3	-	-	1
Mass.	9	-	21	-	27	28	74	2	5	3	9	23	-	-	4
R.I.	6	-	1	-	1	2	14	-	2	-	1	1	-	-	2
Conn.	13	-	14	-	6	2	33	1	12	4	12	16	-	-	1
MID. ATLANTIC	40	-	470	1	44	1,386	236	2	155	11	126	111	1	11	30
Upstate N.Y.	17	-	24	1	10	60	79	2	75	9	96	74	1	9	22
N.Y. City	4	-	406	-	14	309	19	-	-	-	-	3	-	1	5
N.J.	11	-	19	-	3	905	44	-	39	-	6	9	-	1	3
Pa.	8	-	21	-	17	22	94	-	41	2	25	25	-	-	-
E.N. CENTRAL	20	-	255	-	19	965	261	60	5,843	-	107	231	-	27	53
Ohio	8	-	1	-	4	10	99	-	77	-	35	82	-	-	-
Ind.	4	-	-	-	-	11	29	25	805	-	4	22	-	-	-
Ill.	1	-	106	-	12	599	60	5	2,429	-	5	28	-	19	47
Mich.	7	-	29	-	-	45	69	30	837	-	28	23	-	8	5
Wis.	-	-	119	-	2	296	16	-	1,495	-	35	76	-	-	1
W.N. CENTRAL	16	3	197	1	22	278	82	7	1,261	7	61	77	-	1	10
Minn.	5	1	16	1§	20	49	25	4	736	1	10	29	-	-	-
Iowa	3	-	-	-	-	73	3	3	370	5	15	11	-	1	1
Mo.	4	2	181	-	1	31	22	-	20	1	19	5	-	-	1
N. Dak.	-	-	-	-	-	25	1	-	6	-	3	3	-	-	1
S. Dak.	-	-	-	-	-	-	2	-	82	-	2	13	-	-	-
Nebr.	2	-	-	-	-	1	3	-	3	-	1	3	-	-	-
Kans.	1	-	-	-	1	99	26	-	44	-	11	13	-	-	7
S. ATLANTIC	71	3	93	-	10	617	309	1	220	3	188	556	-	13	3
Del.	1	-	30	-	-	1	4	-	-	-	-	222	-	2	-
Md.	18	-	2	-	2	29	29	-	21	-	5	163	-	2	-
D.C.	8	-	-	-	1	1	5	-	1	-	-	-	-	-	-
Va.	14	-	1	-	-	57	52	1	68	-	38	20	-	1	-
W. Va.	2	-	-	-	-	2	1	-	29	1	40	10	-	-	-
N.C.	7	-	1	-	2	3	41	-	14	1	75	27	-	1	-
S.C.	3	-	-	-	-	301	31	-	12	-	-	11	-	-	-
Ga.	3	-	-	-	1	89	58	-	40	-	17	79	-	1	-
Fla.	15	3	59	-	4	34	86	-	38	1	13	34	-	6	3
E.S. CENTRAL	8	-	2	-	-	57	85	6	1,211	1	23	24	-	3	1
Ky.	1	-	-	-	-	-	15	-	210	-	1	1	-	2	1
Tenn.	1	-	-	-	-	54	31	5	945	-	6	6	-	1	-
Ala.	1	-	-	-	-	1	32	1	56	1	11	17	-	-	-
Miss.	5	-	2	-	-	2	7	N	N	-	5	-	-	-	-
W.S. CENTRAL	29	15	311	-	3	599	125	1	697	14	86	99	-	5	53
Ark.	1	-	-	-	-	283	17	-	278	1	7	7	-	2	-
La.	-	-	-	-	-	3	10	-	200	-	17	6	-	-	-
Okla.	4	-	1	-	1	31	17	N	N	13	62	58	-	-	-
Tex.	24	15	310	-	2	282	81	1	219	-	-	28	-	3	53
MOUNTAIN	19	12	480	-	15	306	65	-	180	5	94	148	-	19	20
Mont.	-	9	130	-	1	7	3	-	4	1	4	7	-	3	2
Idaho	2	-	-	-	-	1	5	-	3	-	27	31	-	1	-
Wyo.	1	-	-	-	2	-	-	-	-	-	5	1	-	1	-
Colo.	6	-	5	-	-	7	20	-	28	4	27	41	-	-	1
N. Mex.	1	2	297	-	9	31	3	N	N	-	7	16	-	-	-
Ariz.	7	2	26	-	1	253	21	-	134	-	23	30	-	4	2
Utah	-	-	-	-	1	6	9	-	8	-	1	19	-	10	12
Nev.	2	-	2	-	1	1	4	-	3	-	-	3	-	-	3
PACIFIC	191	17	701	-	50	480	533	4	262	10	278	174	4	163	166
Wash.	15	-	31	-	1	138	67	1	38	4	44	60	-	-	8
Oreg.	4	-	2	-	33	7	24	N	N	-	14	9	-	1	1
Calif.	168	17	668	-	12	325	430	3	205	4	113	99	1	101	155
Alaska	3	-	-	-	-	-	4	-	6	-	3	2	1	2	-
Hawaii	1	-	-	-	4	20	8	-	13	2	104	4	2	59	4
Guam	-	-	2	-	-	5	4	-	5	-	-	-	-	1	2
P.R.	1	9	659	-	-	33	5	-	6	-	12	9	-	2	58
V.I.	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-
Pac. Trust Terr.	-	-	1	-	-	-	1	-	5	-	1	-	-	1	-
Amer. Samoa	-	-	-	-	-	2	-	-	3	-	-	-	-	-	1

*For measles only, imported cases includes both out-of-state and international importations.
N: Not notifiable U: Unavailable †International §Out-of-state

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending July 25, 1987 and July 19, 1986 (29th Week)

Reporting Area	Syphilis (Civilian) (Primary& Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1987	Cum. 1986	1987	Cum. 1987	Cum. 1986	Cum. 1987	Cum. 1987	Cum. 1987	Cum. 1987
UNITED STATES	18,808	14,129	4	11,437	11,654	91	162	315	2,722
NEW ENGLAND	316	280	-	359	370	-	17	4	5
Maine	1	15	-	17	29	-	1	-	2
N.H.	3	10	-	8	11	-	-	-	-
Vt.	1	6	-	7	12	-	1	-	-
Mass.	156	145	-	197	180	-	11	2	-
R.I.	9	16	-	30	34	-	1	-	1
Conn.	147	88	-	100	114	-	3	2	2
MID. ATLANTIC	3,607	2,024	-	1,954	2,366	-	18	6	207
Upstate N.Y.	111	96	-	293	348	-	7	4	22
N.Y. City	2,623	1,149	-	937	1,230	-	1	-	-
N.J.	394	369	-	364	405	-	10	1	9
Pa.	479	410	-	360	385	-	-	1	176
E.N. CENTRAL	495	585	1	1,375	1,386	1	20	29	91
Ohio	58	74	1	255	230	1	6	24	7
Ind.	35	67	-	138	148	-	4	-	11
Ill.	267	305	-	575	629	-	7	1	31
Mich.	86	91	-	349	312	-	2	4	13
Wis.	42	28	-	60	67	-	1	-	29
W.N. CENTRAL	86	134	-	350	329	26	9	38	623
Minn.	11	22	-	73	81	-	4	-	154
Iowa	12	6	-	19	25	3	2	-	171
Mo.	43	73	-	198	164	16	3	11	35
N. Dak.	-	3	-	5	4	-	-	-	80
S. Dak.	8	2	-	17	16	5	-	-	136
Nebr.	7	11	-	12	6	1	-	1	16
Kans.	4	17	-	26	32	2	-	26	31
S. ATLANTIC	6,481	4,256	-	2,485	2,248	5	13	105	732
Del.	47	30	-	23	26	1	-	1	-
Md.	337	249	-	222	161	-	3	32	244
D.C.	186	176	-	79	74	-	-	-	30
Va.	186	215	-	281	192	2	1	6	229
W. Va.	6	12	-	86	67	-	1	5	30
N.C.	356	294	-	281	307	1	1	24	6
S.C.	424	367	-	238	280	-	-	25	34
Ga.	854	840	-	385	333	-	-	12	110
Fla.	4,105	2,073	-	930	799	1	7	-	50
E.S. CENTRAL	1,062	938	-	920	1,017	4	2	42	198
Ky.	9	47	-	241	250	1	1	5	100
Tenn.	448	347	-	211	301	1	1	28	51
Ala.	274	304	-	290	330	-	-	7	47
Miss.	351	240	-	178	136	2	-	2	-
W.S. CENTRAL	2,370	2,894	3	1,333	1,466	36	9	80	403
Ark.	158	154	-	162	194	22	1	10	61
La.	395	461	-	144	228	2	-	-	11
Okla.	88	77	2	131	137	12	2	63	21
Tex.	1,731	2,182	1	896	927	-	6	7	290
MOUNTAIN	391	330	-	278	264	9	8	9	210
Mont.	8	6	-	9	14	1	-	7	103
Idaho	3	6	-	17	11	1	-	-	1
Wyo.	1	-	-	-	-	-	-	1	45
Colo.	85	82	-	29	25	2	-	-	6
N. Mex.	32	43	-	51	54	1	8	-	1
Ariz.	176	136	-	139	125	3	-	-	44
Utah	16	9	-	16	20	1	-	1	3
Nev.	81	48	-	15	15	-	-	-	7
PACIFIC	3,991	2,707	-	2,405	2,189	10	66	2	253
Wash.	73	93	-	146	113	4	5	-	-
Oreg.	148	59	-	62	73	3	1	-	-
Calif.	3,758	2,535	-	2,048	1,865	2	57	2	250
Alaska	3	-	-	34	33	1	-	-	3
Hawaii	9	20	-	116	115	-	3	-	-
Guam	2	1	-	25	32	-	-	-	-
P.R.	556	446	-	175	165	-	-	-	37
V.I.	3	-	-	2	1	-	-	-	-
Pac. Trust Terr.	116	161	-	104	33	-	16	-	-
Amer. Samoa	2	-	-	-	3	-	1	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending July 25, 1987 (29th Week)

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	>65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	634	446	114	48	11	15	50
Boston, Mass.	186	117	39	20	2	8	24
Bridgeport, Conn.	35	27	5	2	1	-	2
Cambridge, Mass.	23	18	4	1	-	-	4
Fall River, Mass.	31	25	4	2	-	-	1
Hartford, Conn.	57	37	11	4	4	1	3
Lowell, Mass.	34	22	8	4	-	-	2
Lynn, Mass.	19	15	2	2	-	-	4
New Bedford, Mass.	22	15	4	1	2	-	-
New Haven, Conn.	43	29	10	2	-	2	1
Providence, R.I.	36	29	4	1	-	2	-
Somerville, Mass.	7	6	1	-	-	-	1
Springfield, Mass.	44	37	6	1	-	-	2
Waterbury, Conn.	35	27	4	3	-	1	3
Worcester, Mass.	62	42	12	5	2	1	3
MID. ATLANTIC	2,616	1,697	533	260	55	71	114
Albany, N.Y.	41	34	5	1	1	-	-
Allentown, Pa.	15	11	4	-	-	-	-
Buffalo, N.Y.	122	81	33	4	1	3	10
Camden, N.J.	40	27	9	2	-	2	1
Elizabeth, N.J.	19	13	4	1	1	-	2
Erie, Pa.†	42	32	7	1	2	-	1
Jersey City, N.J.	40	27	5	5	1	2	-
N.Y. City, N.Y.	1,444	918	276	194	28	38	57
Newark, N.J.	69	33	21	14	1	-	1
Paterson, N.J.	27	14	6	1	4	2	1
Philadelphia, Pa.	300	189	67	21	10	13	14
Pittsburgh, Pa.†	63	40	17	1	-	5	-
Reading, Pa.	31	24	6	-	1	-	3
Rochester, N.Y.	126	81	25	11	2	7	8
Schenectady, N.Y.	25	22	1	1	1	-	4
Scranton, Pa.†	25	20	5	-	-	-	-
Syracuse, N.Y.	90	60	22	5	1	2	8
Trenton, N.J.	36	25	7	4	-	-	1
Utica, N.Y.	35	27	6	1	1	-	3
Yonkers, N.Y.	28	19	4	3	-	-	-
E.N. CENTRAL	2,266	1,454	523	159	62	68	75
Akron, Ohio	75	48	19	2	2	4	-
Canton, Ohio	39	28	9	1	1	-	1
Chicago, Ill.§	564	362	125	45	10	22	16
Cincinnati, Ohio	115	80	27	2	5	1	9
Cleveland, Ohio	160	102	31	21	3	3	2
Columbus, Ohio	122	77	34	7	3	1	15
Dayton, Ohio	108	78	14	12	1	1	4
Detroit, Mich.	283	159	70	28	12	12	4
Evansville, Ind.	44	37	5	1	-	1	-
Fort Wayne, Ind.	61	30	20	7	2	2	3
Gary, Ind.	11	6	5	-	-	-	-
Grand Rapids, Mich.	53	36	7	4	4	2	2
Indianapolis, Ind	159	94	50	7	5	3	-
Madison, Wis.	35	23	7	4	1	-	5
Milwaukee, Wis.	135	90	28	7	4	6	4
Peoria, Ill.	57	38	12	2	2	3	4
Rockford, Ill.	38	26	7	-	2	3	1
South Bend, Ind.	50	30	13	2	3	2	-
Toledo, Ohio§	103	74	24	4	1	-	5
Youngstown, Ohio	56	36	16	2	1	1	-
W.N. CENTRAL	755	528	141	53	19	14	49
Des Moines, Iowa	70	53	14	2	-	1	4
Duluth, Minn.	23	16	6	-	1	-	1
Kansas City, Kans.	25	15	7	2	1	-	-
Kansas City, Mo.	108	73	23	9	2	1	3
Lincoln, Nebr.	27	20	6	-	-	1	1
Minneapolis, Minn.§	172	120	31	12	5	4	11
Omaha, Nebr.	88	62	15	7	3	1	5
St. Louis, Mo.	134	95	25	9	4	1	17
St. Paul, Minn.	46	36	6	3	1	-	2
Wichita, Kans.	62	38	8	9	2	5	5
S. ATLANTIC	1,306	781	298	135	49	42	42
Atlanta, Ga.	180	110	36	22	12	-	2
Baltimore, Md.	209	118	55	23	9	4	5
Charlotte, N.C.	71	43	13	8	3	4	3
Jacksonville, Fla.	126	77	29	8	5	7	5
Miami, Fla.	187	103	44	27	5	8	-
Norfolk, Va.	62	41	12	5	2	2	6
Richmond, Va.	75	42	23	6	2	2	7
Savannah, Ga.	51	33	8	6	2	2	2
St. Petersburg, Fla.	82	66	10	1	1	4	6
Tampa, Fla.	63	39	16	4	-	4	4
Washington, D.C.	175	91	49	22	7	5	1
Wilmington, Del.	25	18	3	3	1	-	1
E.S. CENTRAL	717	484	147	40	24	22	29
Birmingham, Ala.	101	68	17	5	7	6	3
Chattanooga, Tenn.	43	29	11	3	-	-	1
Knoxville, Tenn.	63	41	15	2	3	2	1
Louisville, Ky.	104	71	24	3	1	5	3
Memphis, Tenn.	162	114	29	7	10	2	10
Mobile, Ala.	78	58	10	4	3	3	2
Montgomery, Ala.	50	33	8	6	-	3	5
Nashville, Tenn.	116	72	33	10	-	1	4
W.S. CENTRAL	1,308	816	284	126	46	36	64
Austin, Tex.	44	25	13	3	1	2	5
Baton Rouge, La.	51	35	9	4	1	2	1
Corpus Christi, Tex.§	43	31	9	3	-	-	-
Dallas, Tex.	218	129	45	28	8	8	7
El Paso, Tex.	58	35	10	8	3	2	4
Fort Worth, Tex	94	64	19	6	4	1	5
Houston, Tex.§	308	176	74	34	13	11	7
Little Rock, Ark.	66	40	19	3	3	1	12
New Orleans, La.	96	59	23	8	4	2	-
San Antonio, Tex.	213	137	42	19	8	7	14
Shreveport, La.	35	19	11	5	-	-	6
Tulsa, Okla.	82	65	10	5	1	-	3
MOUNTAIN	662	402	136	68	26	30	39
Albuquerque, N. Mex.	74	39	14	13	7	1	3
Colo. Springs, Colo.	50	35	8	6	1	-	7
Denver, Colo.	94	55	19	9	1	10	2
Las Vegas, Nev.	101	59	29	10	2	1	9
Ogden, Utah	34	21	3	-	-	-	4
Phoenix, Ariz.	140	74	35	17	5	9	5
Pueblo, Colo.	25	18	2	4	1	-	3
Salt Lake City, Utah	53	33	7	4	4	5	1
Tucson, Ariz.	101	68	19	5	5	4	5
PACIFIC	1,849	1,184	355	161	79	62	97
Berkeley, Calif.	21	14	4	3	-	-	1
Fresno, Calif.	94	56	19	10	3	6	9
Glendale, Calif.	14	8	2	1	2	1	-
Honolulu, Hawaii	82	50	23	3	3	3	5
Long Beach, Calif.	78	60	10	2	3	3	4
Los Angeles Calif.	481	303	88	56	22	8	12
Oakland, Calif.	93	57	17	10	6	3	1
Pasadena, Calif.	25	15	5	2	2	1	2
Portland, Oreg.	117	77	23	8	3	6	2
Sacramento, Calif.	142	97	26	5	6	8	8
San Diego, Calif.	140	74	30	17	6	9	14
San Francisco, Calif.	165	103	29	23	8	2	5
San Jose, Calif.	151	102	34	7	5	3	16
Seattle, Wash.	124	82	22	10	8	2	6
Spokane, Wash.	74	49	16	1	2	6	10
Tacoma, Wash.	48	37	7	3	-	1	2
TOTAL	12,113††	7,792	2,531	1,050	371	360	559

*Mortality data in this table are voluntarily reported from 121 cities in the United states, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

**Pneumonia and influenza.

†Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

††Total includes unknown ages.

§Data not available. Figures are estimates based on average of past 4 weeks.

Thallium Poisoning — Continued

but, who 1) had positive blood tests for thallium at the Government Laboratory, 2) came to the Thallium Treatment Centre for advice and treatment, or 3) were thought by physicians at local hospitals to have symptoms related to thallium intoxication.

Results of the CDC analyses showed that none of the seven persons with symptoms meeting the case definition for chronic thallium intoxication had elevated thallium levels in blood or urine. Sixty-seven of the 68 other persons had no detectable thallium in the urine; one had 4.9 ng/ml of thallium in the urine. All of these values are considered by CDC to be within normal limits for thallium (0-5 ng/ml). In the CDC laboratory, the detection limit is 1.4 ng/ml for thallium in urine and 2.2 ng/ml for thallium in blood (*1*).

For the seven persons whose symptoms were compatible with chronic thallium intoxication, the CDC laboratory also analyzed urine samples for arsenic, selenium, and mercury and blood samples for lead. All assays were within normal limits. In addition, serologic tests for syphilis were negative for all seven persons.

The atomic absorption spectrometer for measuring thallium at the Government Laboratory had not been operational for the past year. In place of the instrumental method, a qualitative, colorimetric method (*2*) was used. This method is known to be subject to interference from many substances (e.g., detergents) that will give false-positive results. Results of blood tests for thallium were available from the Government Laboratory for 25 of the 75 persons whose urine was analyzed at CDC. All had been previously reported as positive. None of them had detectable thallium levels in urine tested at CDC. (For the remaining 50 persons, results of blood tests for thallium from the Government Laboratory were pending.) On the basis of the biological half-life of thallium (about 14 days), persons who had measurable levels of thallium in blood tested by the Government Laboratory should still have had measurable levels of thallium in urine that was retested at the CDC laboratory.

There was no documentation of an epidemic of thallium intoxication in Georgetown and the coastal area. Although numerous suspected cases of thallium intoxication were investigated, none were confirmed by analyses of blood and urine specimens for thallium at CDC.

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Editorial Note: Thallium, an odorless, tasteless powder, is a systemic poison with multisystem toxicities. Toxicity can develop following either acute exposures or chronic, repetitive exposures to low doses. Classically, initial symptoms following acute exposure are predominately gastrointestinal and include nausea; vomiting; and severe, colicky abdominal pain. There may also be fever, changes in sensorium, convulsions, cardiovascular abnormalities, and renal toxicity. Several days to a week after exposure, evidence of peripheral neuropathy may develop. This is characterized by reflex changes, hyperesthesias, and pain in the feet and lower legs. Weakness, gait disturbances, and ataxia may also develop. In cases of chronic exposure, signs of basal ganglia damage may be present with Parkinsonian-like symptoms, such as resting tremor. Typically, alopecia occurs after 1 to 2 weeks have elapsed, and may be accompanied by changes in fingernails and toenails, dry scaly skin with diminished perspiration, and stomatitis.

Thallium Poisoning — Continued

In 1973, the World Health Organization recommended against the use of thallium sulfate as a rodenticide because of its toxicity (*3*). However, it is still used for that purpose in many countries. Thallium salts are used in the manufacture of pigments, dyes, luminous paints, artificial gems, window glass, and optical lenses (*4*).

Given the complex nature of thallium testing, it was difficult for the Government Laboratory in Guyana to accurately measure thallium in human specimens during the crisis. It appears that the great majority (if not all) of the recently reported cases of thallium poisoning in Guyana were diagnosed on the basis of positive laboratory tests for thallium. However, persuasive evidence indicates that these tests were not accurate. Since not even one positive laboratory test could be confirmed, this episode should be characterized as an "epidemic of false positives".

The Pan American Health Organization and CDC have investigated several outbreaks of fatal pesticide poisonings in which the country involved requested help in analyzing toxicologic specimens (*5-7*). The international environmental health community must focus on providing trained environmental epidemiologists and adequate laboratory resources to accurately detect, evaluate, and prevent acute illness and death from exposure to high levels of environmental toxicants. As this episode demonstrates, this expertise is also required to reliably demonstrate the absence of exposures so that scarce resources are not expended unnecessarily.

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Epidemiologic Notes and Reports

Tertiary Syphilis Deaths — South Florida

From January 1984 through July 1986, CDC received reports from three counties in south Florida of 18 persons considered to have evidence of tertiary syphilis at autopsy. Based on histologic review at CDC, eight had evidence strongly suggestive of syphilitic aortitis, and three showed cerebral chronic perivascular inflammation consistent with central nervous system syphilitic involvement. Seven were not confirmed on histologic review at CDC. Of the 11 cases consistent with tertiary syphilis, nine were reported by the medical examiners of Broward County, one by the medical examiner of Collier County, and one by a pathologist in Dade County. The Broward County cases were reported when the overall proportion of tertiary syphilis among persons autopsied by the medical examiners was 4 per 1,000.

Syphilis – Continued

The 11 decedents with evidence of tertiary syphilis ranged from 32 to 69 years of age at the time of death. Nine of them were female. Six were white, and five were of other races. Seven of the 11 decedents had reactive postmortem microhemagglutination-*Treponema pallidum* (MHATP) serologic tests, and four had positive postmortem enzyme-linked immunoassay and Western blot tests for antibody to the human immunodeficiency virus (HIV). No postmortem blood was tested for one of the decedents.

To determine what factors may have been associated with evidence of tertiary syphilis at autopsy, a case-control study was performed. Data on the 11 reported decedents were compared with data on 29 autopsied decedents with positive postmortem MHATP tests but no evidence of tertiary syphilis. The two groups were not significantly different in terms of age, race, sex, or intravenous drug use. HIV infection was not significantly associated with tertiary syphilis—four of the decedents with tertiary syphilis and 10 of those in the comparison group had serologic evidence of HIV infection confirmed by Western blot (odds ratio [OR] = 1.3, exact 95% confidence interval [CI] =0.2, 6.9) (Table 1).

The names of persons in both groups were cross-checked with the state syphilis registry; only three with tertiary syphilis and two in the control group were known to have received treatment in Florida for late syphilis (late latent in two and cardiovascular syphilis in one). These three decedents also had HIV infection.

TABLE 1. Risk factors for tertiary syphilis (TS) evaluated in a case-control study* – south Florida, 1984-1986

	Decedents				
Risk Factors	Evidence of TS (n=11)	No Evidence of TS (n=29)	Odds Ratio	(Exact 95% CI†)	Fishers exact 2-tailed p value
HIV-antibody testing					
Positive	4§	10	1.3	(0.2, 6.9)	1.0
Negative	6	19			
Age (years)					
<50	6	11	2.0	(0.4, 10.2)	0.5
≥50	5	18			
Race					
Non-white	5	12	1.2	(0.2, 5.9)	1.0
White	6	17			
Sex					
Male	8	21	1.0	(0.2, 7.4)	1.0
Female	3	8			
Drug abuse					
Evidence	1	2	1.4	(0.02,28.5)	1.0
No evidence	10	27			

*Included 11 decedents with evidence of TS and 29 decedents with positive postmortem microhemagglutination-*Treponema pallidum* serologic tests but no evidence of TS.
†Confidence interval.
§One case omitted due to unavailability of postmortem blood for study.

Syphilis — Continued

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Editorial Note: This study does not support the hypothesis that HIV infection modifies syphilis infection (*1*), as it appears to modify clinical manifestations of tuberculosis (*2*). While severe manifestations of late syphilis in persons with HIV infection have been observed previously (*3,4*), such manifestations have also been observed among other persons (*5*). Moreover, while iatrogenic and other non-HIV-related causes of immunosuppression often reactivate tuberculosis (*6*), rapid progression to and early mortality from tertiary syphilis have not been demonstrated in similar clinical circumstances. Animal experimentation and anecdotal case reports, however, suggest that suppression of cell-mediated immunity may result in an unusual distribution of syphilitic lesions (*7*) and possibly other unusual manifestations of syphilis (*1,4*).

A history of syphilis infection is common among persons with HIV infection. For example, homosexual men with AIDS have been shown to be significantly more likely to have a history of syphilis than are homosexual men without AIDS (*8*). This association has been interpreted to reflect behaviors that are likely to expose patients to HIV infections (*9*), although excess risk independent of such behaviors has been reported (*8*). Since these infections are common in the same populations, evidence of both at death, as found in the study presented here, would be expected to be a common event.

It is not unusual, particularly among persons autopsied by medical examiners and even in areas with a low prevalence of syphilis, to find evidence of tertiary syphilis at autopsy despite its being unsuspected during the decedent's life (*10*). In one study, 1% of a series of decedents autopsied by Danish medical examiners had evidence of active syphilitic aortitis (*10*). Cardiovascular syphilis diagnosed on autopsy may occur among relatively young persons (in two series of autopsies, the mean ages were 36 [*11*] and 52 [*12*]). However, as appreciated in the preantibiotic era (*12*) and noted in this series, the diagnosis may be difficult to confirm.

The possibility that penicillin treatment for syphilis may have failed in two HIV-seropositive patients during latency is disturbing. Failures of penicillin treatment to arrest syphilis infection are considered rare in early disease, though such failures have been reported (*4,13*). They have also been reported in treatment of late infection (*14*), when treatment failure is probably more common. Studies are currently underway 1) to identify risk factors for failure of the treatment for syphilis to prevent or effectively treat tertiary syphilis and 2) to evaluate the clinical and serologic responses to treatment for syphilis of persons with HIV infection.

Physicians who have diagnosed central nervous system, cardiovascular, or other unusual manifestations of syphilis in persons <55 years of age are encouraged to report these findings through their state and local health departments to the Division of Sexually Transmitted Diseases, Center for Prevention Services, CDC. Pathologists diagnosing tertiary syphilis on autopsy are also encouraged to report such cases.

Syphilis — Continued

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FIGURE I. Reported measles cases — United States, weeks 25-28, 1987

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The data in this report are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday. The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333.

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